



## 9.5 Borough of Chatham

This section presents the jurisdictional annex for the Borough of Chatham.

### 9.5.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
William J. Nauta Jr. Coordinator, OEM 973-635-5649 bnauta@chathamborough.org	Stephen Williams Deputy Coordinator 973-727-1173 swilliams@chathamborough.org

### 9.5.2 Municipal Profile

The Borough of Chatham is located in southeastern Morris County just to the east of the Great Swamp Wildlife Refuge at the northeastern terminus of the third Watchung Mountain Ridge where the Passaic River and several tributaries cut through the ridge and flow northeast through the Borough of Florham Park. The Borough has a total area of 2.425 square miles, of which 2.373 square miles is land and 0.052 square miles is water. The Borough of Chatham is bisected by NJ State Highway 124 and adjacent municipalities include the Borough Madison to the west, Chatham Township to the southwest, City of Summit to the south, Millburn Township to the east, and the Borough of Florham Park to the north. According to the U.S. Census, the 2010 population for the Borough of Chatham was 8,962.

### Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in this annex which illustrates the hazard areas along with the location of potential new development.

**Table 9.5-1. Growth and Development**

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Block & Lot)	Known Hazard Zone(s)	Description/Status of Development
<b>Recent Development from 2010 to present</b>					
Kinder Care	Comm	1	45 Main Street	NEHRP: D	Completed Summer 2014
<b>Known or Anticipated Development in the Next Five (5) Years</b>					
No Known Projects					

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.5.3 Natural Hazard Event History Specific to the Municipality

Morris County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference



material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

**Table 9.5-2. Hazard Event History**

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
March 12 – April 15, 2010	Severe Storms and Flooding	DR-1897	Yes	The applicant responded by deploying the CERT TEAM to notify the public door to door, and the Fire Department to pump-out flooded homes and businesses, also, barricade flooded roads; \$12k of total assistance requested
December 26-27, 2010	Severe Winter Storm and Snowstorm	DR-1954	Yes	In the Borough of Chatham, roads were closed or severely compromised creating threats to public health and safety; limiting access to medical facilities schools, food, fuel, utilities and access for police, fire, and rescue units; ; \$21k of total assistance requested
August 26 – September 5, 2011	Hurricane Irene	EM-3332 DR-4021	Yes Yes	During the incident period of August 26, 2011 through September 5, 2011. Hurricane Irene flooded streets and disrupted transportation and public safety systems. Roads were closed or severely compromised with flood waters and debris creating threats to public health and safety. Accumulating waters washed out an area of pavement and underlying support exposing a water main on a main street and a school entrance. The exposed pipe caused traffic to be diverted and delayed the school to delay its opening; \$104k of total assistance requested
October 29, 2011	Severe Storm	DR-4048	Yes	During the incident period beginning October 29, 2011, a Severe Storm caused localized damage to the Applicant's property and created a public health/safety risk due to reduced access to Commerce, Police, Fire and Medical Services; \$85k of total assistance requested
October 26 – November 8, 2012	Hurricane Sandy	EM-3354 DR-4086	Yes Yes	Roads Closed, Power lines and trees down; 75% of Borough without power for 12 days. Recreation Storage Building, DPW Fencing and Municipal Pool Electric Service were damaged. Trees in to multiple private residences; \$331k of total assistance requested

### 9.5.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Borough of Chatham. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

#### Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Borough of Chatham.



Table 9.5-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Drought	Damage estimate not available	Frequent	27	Medium
Dam Failure	Damage estimate not available	Rare	6	Low
Earthquake	500-year MRP: \$1,912,686 2,500-year MRP: \$35,680,217	Occasional	32	Medium
Extreme Temperature	Damage estimate not available	Frequent	18	Medium
Flood	1% Annual Chance: \$1,750,554	Frequent	18	Medium
Geological Hazards	Exposed to Class A and Class B: \$10,463,810	Occasional	12	Low
Severe Storm	100-Year MRP: \$2,088,826 500-year MRP: \$9,504,609 Annualized: \$138,125	Frequent	48	High
Winter Storm	1% GBS: \$21,127,697 5% GBS: \$105,638,487	Frequent	54	High
Wildfire	Estimated Value Exposed to Extreme, \$0 Very High and High:	Rare	6	Low
Disease Outbreak	Damage estimate not available	Frequent	36	High
Hazardous Materials	Damage estimate not available	Frequent	36	High
Infestation	Damage estimate not available	Frequent	18	Medium

## Notes:

- Building damage ratio estimates based on FEMA 386-2 (August 2001)
- The valuation of general building stock and loss estimates was based on custom inventory for the municipality.  
High = Total hazard priority risk ranking score of 31 and above  
Medium = Total hazard priority risk ranking of 20-30+  
Low = Total hazard risk ranking below 20
- Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
- Loss estimates for the flood and earthquake hazards represent both structure and contents.
- The HAZUS-MH earthquake model results are reported by Census Tract.

## National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Borough of Chatham.

Table 9.5-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Chatham Borough	51	3	\$2,753.12	0	0	7

Source: FEMA Region 2, 2014

- Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 9/30/2014. Please note the total number of repetitive loss properties includes the severe repetitive loss properties. The number of claims represents claims closed by 9/30/14.
- Total building and content losses from the claims file provided by FEMA Region 2.
- The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.



Number of policies and claims and claims total exclude properties located outside County boundary, based on provided latitude and longitude.

### Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1- and 0.2-percent annual chance flood events.

**Table 9.5-5. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Potential Loss from 1% Flood Event		
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100-Percent <sup>(1)</sup>
Molitor Water Pollution Control Facility	Wastewater	X	X	30	-	-

Source: HAZUS-MH 2.1

Note (1): HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

Note (2): In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type. Further, HAZUS-MH may estimate potential damage to a facility that is outside the DFIRM because the model generated a depth grid beyond the DFIRM boundaries.

NA Not available

X Facility located within the DFIRM boundary

- Not calculated by HAZUS-MH 2.1

### Other Vulnerabilities Identified

Flooding in the Borough is typically caused by the Passaic River as a result of heavy rains generally associated with thunderstorms and hurricanes during the summer and fall (FEMA FIS 2010).

Additionally, the Borough of Chatham has two areas which parallel the Passaic River which flood during heavy rains and hurricanes. The first is south of the Route 124 bridge on the west side of the Passaic River. Approximately 500 feet of the Passaic River floods the eastern part of Shepard Kollock Park. This area drains as soon as the level of the river recedes. The second location is north of the Route 124 Bridge. 200 feet of the banks of the west side of the Passaic River floods into the Parking Lot behind number 26 Main Street. This location drains quickly when the Passaic River recedes. These are the only two locations in Chatham Borough that floods due to the Passaic River. Neither of these two locations contain residential housing and there have been no reported losses reported due to the flooding in these locations.

### 9.5.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms



### Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Borough of Chatham.

**Table 9.5-6. Planning and Regulatory Tools**

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
<b>Planning Capability</b>				
Master / Comprehensive Plan	Yes	Local	Engineering	Borough Master Plan
Capital Improvements Plan	Yes	Local	Administrator	Borough Strategic Financial Mgt Plan
Floodplain Management / Basin Plan	No			
Stormwater Management Plan	Yes	Local	Engineering	Borough Storm Water Mgt Plan
Open Space Plan	Yes	Local	Engineering	Borough Master Plan
Stream Corridor Management Plan	No			
Watershed Management or Protection Plan	Yes	Local	Engineering	
Economic Development Plan	No			
Comprehensive Emergency Management Plan	Yes	Local/State	OEM	Emergency Operating Plan Chatham Borough
Emergency Response Plan	Yes	Local	OEM	EOP Chatham Borough
Post-Disaster Recovery Plan	No			
Transportation Plan	No			
Strategic Recovery Planning Report	No			
Other Plans:	No			
<b>Regulatory Capability</b>				
Building Code	Yes	State & Local		State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	State/Local	Engineering	Borough Code
Subdivision Ordinance	Yes	Local	Engineering	Borough Code
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local		
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State, Local		
Growth Management Ordinances	No			
Site Plan Review Requirements	Yes	Local	Engineering	Borough Code
Stormwater Management Ordinance	Yes	Local	Engineering	Borough Code
Municipal Separate Storm Sewer System (MS4)	Yes	Local	Engineering	
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	Yes	State	Division of Consumer Affairs	N.J.A.C. 13:45A-29.1



Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Yes	Local	Engineering	Borough Code

### Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Chatham.

**Table 9.5-7. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Administrator
Mitigation Planning Committee	Yes	Engineering
Environmental Board/Commission	Yes	Administrator
Open Space Board/Committee	Yes	Engineering
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	Yes	DPW
Mutual Aid Agreements	Yes	Chatham Police/Fire
<b>Technical/Staffing Capability</b>		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Engineering
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineering
Planners or engineers with an understanding of natural hazards	Yes	Engineering
NFIP Floodplain Administrator	Yes	Engineering
Surveyor(s)	Yes	Engineering
Personnel skilled or trained in GIS and/or Hazus-MH applications	Yes/No	Engineering
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Fire Coordinator and OEM Coordinator
Grant Writer(s)	Yes	Community Services
Staff with expertise or training in benefit/cost analysis	Yes	CFO
Professionals trained in conducting damage assessments	Yes	Engineering



## Fiscal Capability

The table below summarizes financial resources available to the Borough of Chatham.

**Table 9.5-8. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community development Block Grants (CDBG, CDBG-DR)	No
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes (Water/Sewer)
Impact Fees for homebuyers or developers of new development/homes	No
Stormwater Utility Fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	Yes - Morris County Flood Mitigation Program (acquisitions)
Other	No

## Community Classifications

The table below summarizes classifications for community program available to the Borough of Chatham.

**Table 9.5-9. Community Classifications**

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No		
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Class 3	2014
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Disaster/Safety Programs in/for Schools	No		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	No		
Public-Private Partnerships	No		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property





insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>

### Self-Assessment of Capability

The table below provides an approximate measure of Chatham's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

**Table 9.5-10. Self-Assessment Capability for the Municipality**

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)*	Moderate	High
Planning and Regulatory Capability		X	
Administrative and Technical Capability		X	
Fiscal Capability		X	
Community Political Capability			X
Community Resiliency Capability		X	
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

### National Flood Insurance Program

#### NFIP Floodplain Administrator

Vincent DeNave, Borough Engineer

#### Flood Vulnerability Summary

Chatham Borough joined the NFIP on June 1, 1973, and is currently an active member of the NFIP. The current effective Flood Insurance Rate Maps are dated July 19, 2001. The community's Flood Damage Prevention Ordinance (FDPO), found at Chapter 165 Article XI of the local code, was last updated on 7/9/2001.

As of February 28, 2015, there are 48 policies in force, insuring \$12.3 million of property with total annual insurance premiums of \$31,259. Since February 14, 1976, three claims have been paid totaling \$2,753.12. As of September 30, 2014 there are 0 Repetitive Loss and 0 Severe Repetitive Loss properties in the community.

The Borough does not currently maintain a list of flood damaged properties nor a property owner's interest in mitigation projects. No Substantial Damage Estimates were made following Hurricane Sandy. At this time, no property owners in the Borough are interested in mitigation projects.





## Resources

The community FDPO identifies the Construction Official or the Borough Engineer as the local NFIP Floodplain Administrator, currently Vincent DeNave, for which floodplain administration is an auxiliary duty. Vincent DeNave, Borough Engineer, is the sole person responsible for the implementation of the floodplain management program. Duties and responsibilities of the NFIP Administrator are permit review, inspections, damage assessments, and record keeping. Vincent DeNave feels he is adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. No financial, political, or personnel barriers were identified to inhibit the Borough's ability to implement an effective floodplain program. Vincent DeNave is not certified in floodplain management, however attends regular continuing education programs for code enforcement.

At this time, the Borough does not implement a formal education and outreach program.

## Compliance History

The community is currently in good standing in the NFIP and has no outstanding compliance issues. The current NFIP Floodplain Administrator has no knowledge of when the last CAV was performed. Vincent DeNave sees no specific need for a CAV at this time.

## Regulatory

The communities Flood Damage Prevention Ordinance (FDPO) was last updated on 7/9/2001, and is found at Chapter 165 Article XI of the local code. Current ordinances and regulations enforced exceed the minimum requirements set forth by FEMA and the State of New Jersey.

## Community Rating System

The Borough of Chatham does not participate in the Community Rating System (CRS) program.

## Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

## Planning

The Borough of Chatham recently adopted an amendment to the Borough Master Plan in 2013 and last adopted the Master Plan in 2006. The 2006 Master Plan identified the following objectives and implementation strategies related to hazard mitigation:

### Objectives

1. Protect local natural resources that provide the Borough's water supply, prevent flooding and provide recreational opportunities.
2. Consider common regional issues, such as water supply, stormwater management, transportation and recreation as opportunities for a cooperative regional issues.

### Implementation Strategies





1. Ensure that regulations as well as infrastructure investments and other related program are consistent with the Borough's Master Plan and Stormwater management Plan
2. Promote closer coordination between the Zoning and Planning Boards and the Construction Office.
3. Investigate the incorporation of incentives for the application of "green technology" to the construction and renovation of structures.

### **Regulatory and Enforcement**

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The Borough's Land Use Ordinance, Chapter 165 Article XI Floodplain Regulations consider flood hazard risks. The Borough Planning Board uses the advice of Borough professionals and the Emergency Management Coordinator to guide their decisions with respect to natural hazard risk management. The Planning Board requires developers to take additional actions to mitigate flood hazard risk.

### **Operational and Administration**

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The Borough has a planning consultant; however, the planner does not provide services with respect to natural hazard risk reduction. The Borough has a Planning Board in accordance with its statutory authority. The Board reviews all site plans, subdivision, and variance applications in accordance with the adopted codes in the Borough of Chatham and pursuant to its jurisdiction under the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.). Vincent DeNave performs both Stormwater Management functions and NFIP Floodplain Management functions within the Borough.

### **Fiscal**

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Currently, the municipal/operating budget does not include line items for mitigation projects or activities. The Borough does have a Capital Improvements Budget which includes budget for mitigation-related projects. The Borough has planned for the Days Brook Streambank Stabilization Project totaling \$100,000.

### **Education and Outreach**

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The Office of Emergency Management is charged with the responsibility to help the Borough of Chatham prepare for, respond to, and help recover from disasters. Disasters may be of natural origin or man made. The most common natural events are winter and tropical storms. Their impact may range from mild to devastating. Disasters may occur at any time or place. In the event of a major event the local Office of Emergency Management serves as the conduit between Borough and the State and Federal agencies.

The Emergency Management Coordinator is responsible for the coordinating of all Borough responses to disasters and assisting with obtaining required emergency resources. To help with the planning, preparation, and testing of emergency plans the Borough has a Local Emergency Planning Council, (LEPC). The LEPC consists of representatives from the Borough Council, Police Department, Fire Department, Emergency Squad, Department of Public Works, Borough Administrator, Superintendent of the School District, Construction Department.

The Borough's Emergency Operating Plan is always a work in progress. The plan is constantly being reviewed, tested and revised. Every four years the New Jersey State Police, Office of Emergency Management, reviews and approves our plan. The plan was last reviewed and approved by the State on May 28, 2015.



### 9.5.6 Mitigation Strategy and Prioritization

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This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

#### Past Mitigation Initiative Status

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The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.



Table 9.5-11. Past Mitigation Initiative Status

2010 Mitigation Action	Lead	Status (In progress, No progress, Complete)	Description of Status	Next Step (Include in 2015 HMP, Discontinue)	Description of Next Step
<b>Chatham Boro 1:</b> Berm to Prevent flooding of Days Brook (retention project completed but did not mitigate flooding).	Chatham Boro OEM	No Progress	0% Complete Financial Constraints	Include in 2015 HMP	Seeking Funding
<b>Chatham Boro 2:</b> Creation of retention basins to disperse flood waters in residential backyards on Delwood Avenue.	Boro Engineers	Complete	Locally Funded	Discontinue	None identified
<b>Chatham Boro 3:</b> Upgrade of the backup power (generator) at Chatham Fire Station.	Chatham Boro OEM	Complete	Locally Funded	Discontinue	None identified
<b>Chatham Boro 4:</b> Backup power (generator) for United Methodist Church (Warming Station)	Chatham Boro OEM	No Progress	0 % Complete Financial Constraints	Discontinue	None identified
<b>Chatham Boro 5:</b> Backup power generator for Chatham Boro Middle School (Warming Station).	Chatham Boro OEM	No Progress	0 % Completed Financial Constraints	Discontinue	None identified
<b>Chatham Boro 6:</b> Backup power generator for St. Patrick's Church (Warming Station).	Chatham Boro OEM	No Progress	0 % Completed Financial Constraints	Discontinue	None identified
<b>Chatham Boro 7:</b> Develop all-hazards public education and outreach program for hazard mitigation and preparedness.	OEM Coordinator, in coordination with MCOEM	No Progress	0 % Completed Financial Constraints	Discontinue	None identified



### Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The municipality has not identified any mitigation projects/activities that have been completed but were not identified in the previous mitigation strategy in the 2010 Plan.

### Proposed Hazard Mitigation Initiatives for the Plan Update

The Borough of Chatham participated in a mitigation action workshop in January 14, 2015 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). In July 2015, the Borough of Chatham participated in an NFIP workshop to further assist with the identification of mitigation items.

Table 9.5-12 summarizes the comprehensive-range of specific mitigation initiatives the Borough of Chatham would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.5-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



**Table 9.5-12. Proposed Hazard Mitigation Initiatives**

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
BCHM-1 (old Chatham Boro 1)	Stream Bank Stabilization of Days Brook (retention project completed but did not mitigate flooding).	Existing	Flood	G- 3,4	Chatham Borough Engineering/ OEM	Mitigation of Flooding	\$100K	Capital Budget/ FEMA Mitigation Grant	Short Term, DOF	Medium	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

\*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
NJDEP	New Jersey Department of Environmental Protection
NJOEM	New Jersey Office of Emergency Management
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program (discontinued 2015)
SRL	Severe Repetitive Loss Grant Program (discontinued 2015)

Timeline:

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

Low	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.



Costs:

High Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

High Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)- These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities





Table 9.5-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
BCHM-1 (old Chatham Boro 1)	Stream Bank Stabilization of Days Brook (retention project completed but did not mitigate flooding).	0	1	1	1	1	1	-1	1	0	0	0	1	0	0	6	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



### **9.5.7 Future Needs To Better Understand Risk/Vulnerability**

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None at this time.

### **9.5.8 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Borough of Chatham that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Borough of Chatham has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

### **9.5.9 Additional Comments**

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None at this time.



Figure 9.5-1. Borough of Chatham Hazard Area Extent and Location Map 1

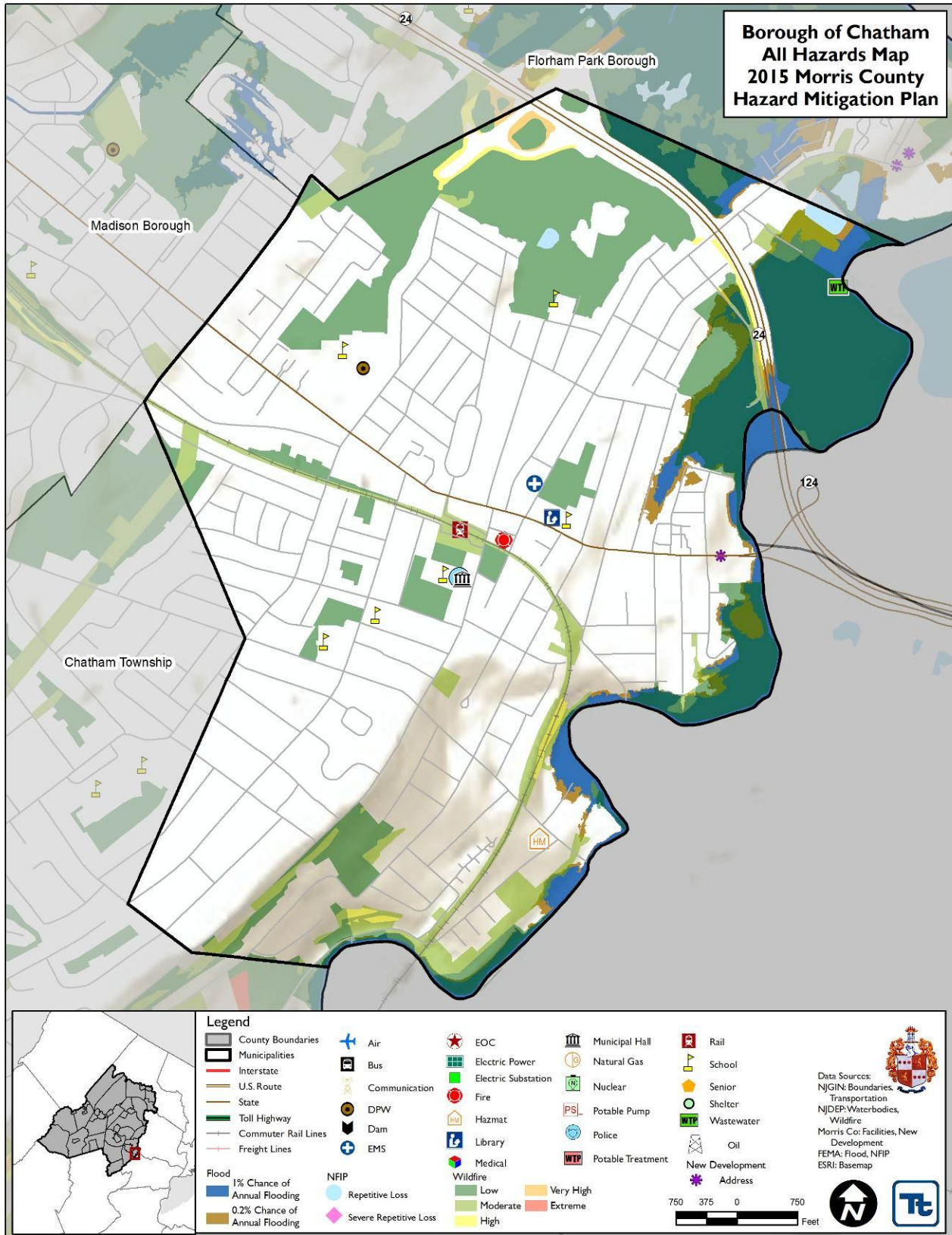
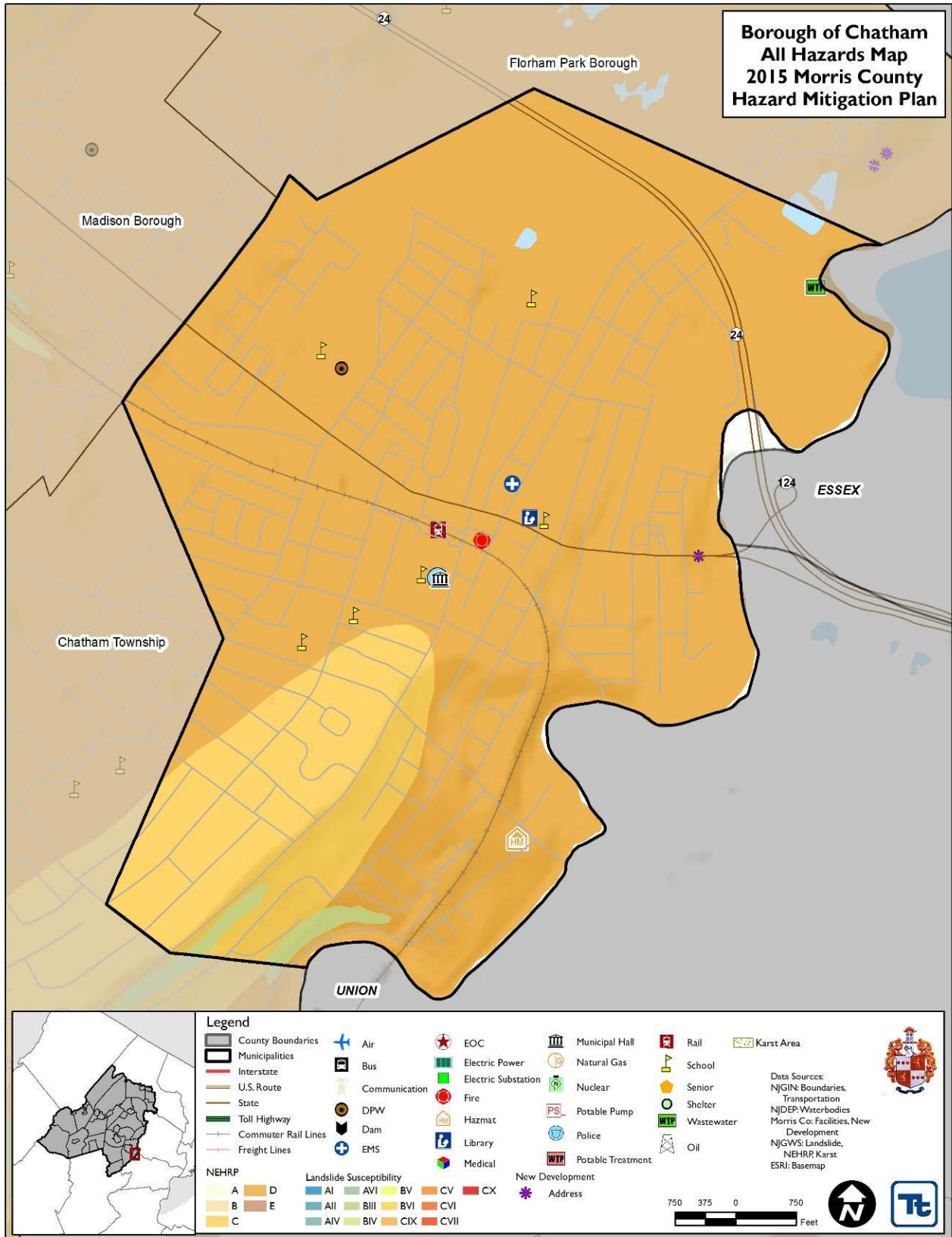




Figure 9.5-2. Borough of Chatham Hazard Area Extent and Location Map 2







**Name of Jurisdiction:** Borough of Chatham  
**Action Number:** BCHM-1 (old Chatham-1)  
**Mitigation Action/Initiative:** Stream Bank Stabilization Project to alleviate flooding of Days Brook

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flooding and Stream Bank Erosion
<b>Specific problem being mitigated:</b>	Flooding of Days Brook Stream Bank Erosion and Debris Removal from Brook
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	1 Stream Bank Stabilization Project
	2. Reduced Size and Scope of Original Stream Bank
	3. Take No Action
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Construct retaining walls to enable stream bank to be stabilized to prevent flooding of Days Brook. Project will also include removal of trees that have grown in Days Brook. A retention project was completed but it did not mitigate flooding.
<b>Action/Project Category</b>	SIP
<b>Goals/Objectives Met</b>	G-3,4
<b>Applies to existing, future, or not applicable</b>	Existing
<b>Benefits (losses avoided)</b>	This project will stabilize the banks of Day's Brook north of Rt 124 and remove tree growth in the brook bed and the construction of retaining walls will eliminate flooding from the eroded stream banks.
<b>Estimated Cost</b>	\$100,000.00 – High
<b>Priority*</b>	
Plan for Implementation	
<b>Responsible Organization</b>	Chatham Borough Engineer and OEM
<b>Local Planning Mechanism</b>	Borough Engineer
<b>Potential Funding Sources</b>	Capital Budget / FEMA Hazard Mitigation Grant
<b>Timeline for Completion</b>	2015 - Short
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	Date: 2/26/15 Progress on Action/Project: Project has not been started as of this date

\* Refer to results of Prioritization (page 2)



**Name of Jurisdiction:** Borough of Chatham

**Action Number:** BCHM-1 (old Chatham-1)

**Mitigation Action/Initiative:** Berm to prevent flooding of Days Brook

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protect surrounding areas from flood damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	The Borough will need to obtain grant funding for this project
Environmental	1	
Social	0	
Administrative	0	
Multi-Hazard	0	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	6	
<b>Priority (High/Med/Low)</b>	Medium	